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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,555	10/20/2003	Georg Michael Ickinger	ICKINGER	8387

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EXAMINER	
LUK, EMMANUEL S	

ART UNIT	PAPER NUMBER
1722	

DATE MAILED: 02/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/689,555	ICKINGER ET AL.	
	Examiner	Art Unit	
	Emmanuel S. Luk	1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/20/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 1-11 are rejected under 35 U.S.C. 101 because the claims contain both apparatus and method steps of using the apparatus. The claims contain an apparatus with the elements in the apparatus. The claims further contain method steps of using the apparatus. In claims 1-11, the method steps are the operation of the spindle drive loading the energy storage device in a return stroke phase and unloading in a feed phase, the unloading of the energy storage device boosting power of the electric motor, wherein the first force is equal to the second force at an equilibrium location of the spindle drive distal from the end positions.

In claims 9-11, the excitation frequency tuned to a characteristic frequency of an oscillating system that in includes the dual energy storage device and a moved mass is a method step of using.

The claims direct to neither a process nor a machine, but rather embraces or overlaps two different statutory classes of invention set forth in 35 U.S.C. 101 which is drafted so as to set forth the statutory classes of invention in the alternative only. Id. at 1551. MPEP §2173.05(p).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim contains both method steps and apparatus claims and this is ambiguous as it is directed to neither a process nor a machine.

Claims 9-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 9-11 claim a moved mass, it is indefinite as what the moved mass is in relation to the structure of the claimed invention. There is a lack of nexus in the moved mass for one of ordinary skill in the art to determine in relation to the apparatus. In claim 10, the moved mass includes the ejector plate, ejector rams, spindle rod and spindle nut, however it is still unclear what encompasses the moved mass.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 2, and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada (5658600) in view of Stirn (6533972).

Okada teaches energy storage devices (30, 34; Fig. 4 and 5) that are coupled with the spindle drive (19) for force transmission, the energy storage devices are springs (30, 34; Figures 4 and 5) that are loaded and unloaded by the spindle drive during the stroke phases, specifically the forward phase and return phase. The spindle drive causes the loading and unloading of the energy storage device which in turn causes force upon the member (5).

Okada fails to teach an electric motor and selective locking.

Stirn teaches a motor (40, Col. 3, line 53; Col. 4, lines 7-15; servomotor) as a spindle drive element with the spindle being an ejector arm (50), the spindle drive further including a control mechanism (control system 80; which controls desired motion of the members from the position of the pins and the desired range of motion, Col. 4, lines 57-52). The motor having an armature and stator, and can also be a servomotor, the motor taught by Stirn is an electric motor.

It would have been obvious to one of ordinary skill in the art to modify Okada with an electric motor as taught by Stirn because finer control of the motor as it moves the spindle.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okada in view of Stirn as applied to claims 1, 2, and 7-10 above, and further in view of Schad (5499916).

Okada fails to teach a disk spring.

Schad teaches the use of disk spring (31) to bias against the nozzle housing. It would have been obvious to one of ordinary skill in the art to modify Okada, as modified by Stirn, with a disk spring as taught by Schad in replacement of one of the compression spring as it has the same function as the spring.

8. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okada in view of Stirn as applied to claims 1, 2, and 7-10 above, and further in view of Fink (5482101).

Okada fails to teach rolling balls with the spindle.

Fink teaches a spindle (14) and electric motor (20) that are used in a die casting machine where the rolling balls (34) are used. It would have been obvious to one of ordinary skill in the art to modify Okada, as modified by Stirn, with rolling balls with the spindle as taught by Fink because it allows for a multispeed servomotor to interact with a multiple-roll spindle.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yamasaki (4676730) teaches a electric motor (M; servomotor, Col. 3, line 30) as a spindle drive element, the spindle being the threaded portion (11a) of the ball screw (11b), the spindle drive further including a control mechanism (limit switches 21, 22),

arranged between the drive element and the housing section (1, 7), and an energy storage device (15a) coupled with the drive for force transmission therebetween, wherein the drive loads the energy storage device in a stroke phase of the spindle drive and unloads the energy storage device in the return stroke drive, said unloading of the energy is capable of boosting power of the electric motor. However, Yamasaki instead teaches the energy storage device (15a) loading in the feed stroke phase and unloading the energy in a return phase.

Inaba (5804224) teaches an energy loading device (61) loading in the feed stroke phase and unloading the energy in a return phase.

Ito (6524095) teaches an energy loading device (63) loading in the feed stroke phase and unloading the energy in a return phase.

Maurilio (2002/0132026) teaches an injection molding device having an energy storage device (220) that loads during the unloading phase and unloads during the feed phase. However, Maurilio does not teach a spindle or spindle drive.

Heinz (EP0512139), provided by the applicant, teaches a spindle drive having a stationary housing (1,2) and an electric motor (3), an energy storage device (21, 24) coupled with the spindle drive, the spindle drive loads the energy storage device in a return stroke and unleads th energy storage device in a feed stroke since the energy storage device (21; tellerfederpacket, or spring washers). Heinz does not teach a control mechanism that operates with the energy storage device to actively modify an effective actuating force of the energy storage device depending on a stroke position of the spindle drive.

Eppich (5980235) also does not teach a control mechanism that operates with the energy storage device to actively modify an effective actuating force of the energy storage device depending on a stroke position of the spindle drive.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel S. Luk whose telephone number is (571) 272-1134. The examiner can normally be reached on Monday-Thursday 8 to 5 and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ben Utech can be reached on (571) 272-1137. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EL

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